

PROTOTRYGAEUS JORDANAE, A NEW SPECIES OF PYCNOGONID FROM MONTEREY BAY, CALIFORNIA

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Abstract.—A new species of Pycnogonida, *Prototrygaeus jordanae*, is described and illustrated from soft sediments in Monterey Bay, California. The new species is compared with the only other known species of the genus, *P. ammothelloides* Stock, from Guyana, South America, and their relationship and distribution are discussed.

While studying the biology and life history of two species of pycnogonids taken by epibenthic sleds from Monterey Bay, California, the new species described herein was discovered in large numbers inhabiting soft sediments at depths of 50–70 meters. Attempts were made to identify the species in question and it was then that their collector, Roxanne Jordan of Moss Landing Marine Laboratory, Monterey Bay, kindly sent specimens to me for examination. A second species, *Anoplodactylus erectus* Cole, was taken in large numbers from muddy sediments at 70–90 meters, but also occurred in some 70 meter sled hauls with the new species. This second species is known from British Columbia, Canada, to at least Panama, and probably occurs south of there, but it is usually taken in shallower water down to about 40 meters.

Systematics

Genus *Prototrygaeus* Stock, 1975

Emended diagnosis.—With the characters of the type genus except for palps of six or seven segments, ovigers of nine or ten segments, and female oviger terminal segment with claw or paired simple spines.

Prototrygaeus jordanae, new species

Fig. 1

Material examined.—California: Monterey Bay, 36°49.6'N, 121°50.8'W, epiben-

thic sled in soft sediment with hydroids on molluscs and wood, 50–70 m, collected on mixed dates, 1988 (1 m, holotype, USNM 234509). Same locality, 55 m, 22 Sep 1988 (1 f, 1 juv, paratypes, USNM 234510).

Other material.—Same locality, 60 m, 21 Apr 1988, epibenthic sled in soft sediment as above (250+ m, f, j).

Description.—Size moderately small, leg span 9.7 mm. Trunk and lateral processes moderately slender, trunk segmentation incomplete but suture lines partly present. Neck very short, broad. Lateral processes very long, separated by about twice their diameters distally, about 3.5 times longer than their diameters, armed with broad dorsodistal tubercles, as tall as segment diameters, glabrous. Ocular tubercle slender, about 2.5 times longer than basal diameter, directed obliquely anterior, tapering to rounded apex. Eyes large, darkly pigmented, anterior pair slightly more distal than posterior pair. Abdomen very slender, longer than ocular tubercle, almost erect, armed with few short lateral and distal setae.

Proboscis a swollen cylinder, tapering proximally and distally to rounded lips.

Chelifore scapes of two segments, first segment only 0.6 length of second which is swollen distally. Second scape segment armed with 2–3 setae as long as distal diameter of segment, chela with single similar seta. Chela with moderately large palm having only hint of finger buds.

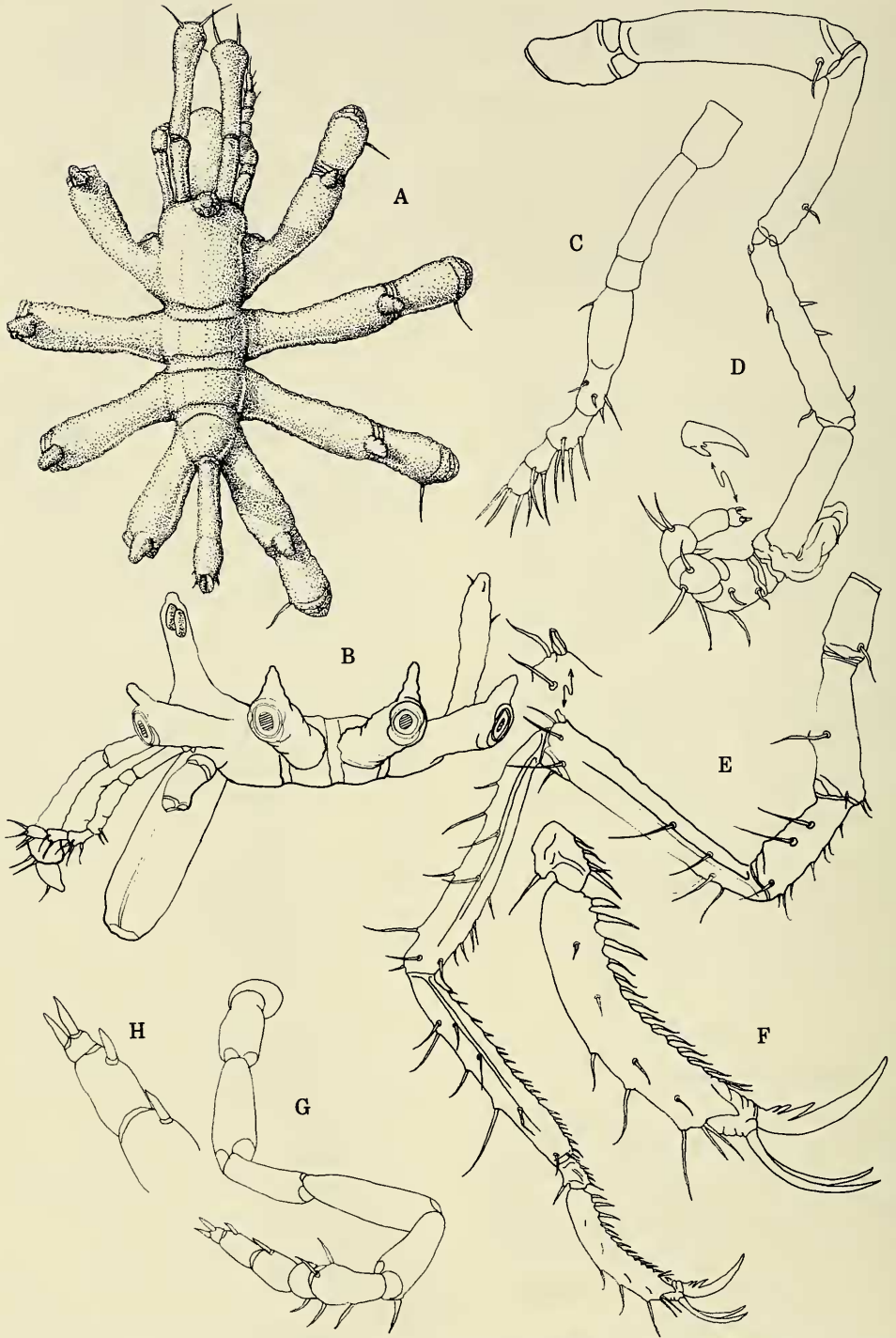


Fig. 1. *Prototrygaeus jordanae*, holotype male: A, Trunk, dorsal view; B, Trunk, lateral view; C, Palp; D, Oviger, with enlarged terminal claw; E, Third leg, with enlarged cement gland tube; F, Terminal segments of third leg, enlarged. Paratype female: G, Oviger; H, Oviger terminal segments, enlarged.

Palp with seven segments, second slightly shorter than fourth, terminal three segments decreasing in size only slightly, fourth and terminal three segments armed with few setae each longer than segment diameter.

Oviger with ten segments, elongate, second and third segments subequal, fourth and fifth each slightly shorter than last, strigilis very short, sixth, seventh and eighth segments with 2–4 ectal setae longer than segment diameter and 1–2 short endal spines. Terminal two segments short, tenth no longer than wide and armed with two curved sharply pointed spines bearing two lateral teeth, the proximal larger tooth followed by a very tiny second pointed tooth. Ninth segment cylindrical, glabrous.

Legs moderately long, segments increasingly setose distally. First coxae with long posterodistal seta each, second coxae with one long medianlateral seta per side, third coxae with two similar setae per side. Major leg segments with few lateral, ventral and distal long setae, first tibiae with few ventrodistal short setae, second tibiae with ventral row of very short setae. Femoral cement gland a small dorsodistal sac with a very short distal tube, much shorter than segment diameter. Tarsus short, semirectangular, armed with single dorsal seta and several ventral setae. Propodus slender, long, moderately curved, without marked heel but with three large heel spines. Sole with 12–13 curved spines. Claw long, well curved, with three endal teeth increasing in size from short proximal to broad distal tooth. Auxiliary claws very slender, as long as main claw.

Female: Dorsodistal tubercles on lateral processes not as robust or tall as those of male. Palp 7-segmented and oviger 10-segmented. Oviger with shorter segments; second, fourth and fifth subequal, strigilis of increasingly short segments, eighth and ninth armed with single lateral simple spine, terminal segment wider than long, armed with pair of simple spines but without a curved claw. Legs slightly less setose than those of male, gonopores prominent, ventrodistal on

all second coxae. Juvenile with fully chelate chelae.

Measurements (of holotype) in mm.—Trunk length (chelifore insertion to tip fourth lateral processes), 1.04; width across 2nd lateral processes, 1.24; abdomen length, 0.49; proboscis length, 0.64; third leg, coxa 1, 0.27; coxa 2, 0.44; coxa 3, 0.38; femur, 0.82; tibia 1, 0.8; tibia 2, 0.74; tarsus, 0.11; propodus, 0.45; claw, 0.22.

Distribution.—The new species is only known from Monterey Bay, California, in 50–70 meters.

Etymology.—I take pleasure in naming this species after its collector, Ms Roxanne Jordan of the Moss Landing Marine Laboratory, Monterey Bay, California.

Remarks.—The most striking difference between this new species and the only other one known in this genus, *Prototrygaeus ammothelloides* Stock (1975:979–981, fig. 9), is the presence of prominent lateral process tubercles on *P. jordanae*. The legs, except for the longer cement gland tube in Stock's species, the ocular tubercle, and the chelifores are all very similar in the two species.

The other prominent differences are only evident under close examination: the increased number of palp and male oviger segments in the new species. The palp of Stock's species apparently has a coalesced or fused terminal segment giving it one less segment than the generally longer palp of *P. jordanae*. Possibly one of the two terminal oviger segments of the male of Stock's species has fused from an original count of three, although it is not apparent in his figure 9h. Such fusion would account for the reduction of palp and oviger segment counts and no other explanation seems appropriate for this discrepancy in numbers, particularly since the female of his species has the full number of oviger segments.

Stock's species also has a few anterior and posterior papillae on the lateral processes which are absent in the male and female of this species, and the abdomen is notably shorter in *P. jordanae*.

The occurrence of the two known species

of this genus on either side of the Western Hemisphere is noteworthy and suggests a pre-Panamanian emergence distribution with subsequent speciation from a parent species. There can be little doubt with the close morphological similarities between these species that they are near relations. It will be interesting to learn the degree of restriction in the distribution of both species when more specimens of each are collected in other localities. Both are apparently found in subtidal habitats of shallow depth. There is mention (Jordan, pers. comm.) of probable epifaunal forage in the form of hydroids on the soft sediments where the new species lives. This is in keeping with what is known of pycnogonid feeding habits and where the hydroid forage is heavy as it apparently is in this locality, the number of specimens can be extremely large as shown by the single sled haul of over 250 specimens.

Acknowledgments

I am grateful to the collector, Ms Roxanne Jordan, for the opportunity to examine and describe this interesting new species from

an area believed to have been well collected in the past. Its occurrence suggests that careful collecting in almost any area can produce unexpected fauna of interest to the systematist.

I thank both the invertebrate editor and the Proceedings editor for their care and suggestions for improving manuscript.

The types and other material are deposited in the collections of the Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C., under the numbering system of the old U. S. National Museum (USNM).

Literature Cited

- Stock, J. H. 1975. Pycnogonida from the Continental Shelf, Slope, and Deep Sea of the Tropical Atlantic and East Pacific. *In* Biological Results of the University of Miami Deep-Sea Expeditions, 108.—*Bulletin of Marine Science* 24(4):957–1092, 59 figs.

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